Sequences: EOC Prep

Spring 2013

Name: _Key_

Directions: The following questions are sample items similar to those found on the EOC Exam. Answer each to the best of your ability.

1. The table below shows the cost of a pizza based on the number of toppings.

Number of Toppings (n)	Cost (C)
1	$12
2	$13.50
3	$15
4	$16.50

Stat → Calc → 4

$y = 1.5x + 10.5$

Which function represents the cost of a pizza with n toppings?

(A) $C(n) = 12 + 1.5(n - 1)$

B $C(n) = 1.5n + 12$

C $C(n) = 12 + n$

D $C(n) = 12n$

a) $12 + 1.5(n-1)$
$12 + 1.5n - 1.5$
$1.5n + 10$

2. The sequence below shows the number of trees a nursery plants each year.

$$2, 8, 32, 128, ...$$

×4 ×4 ×4

Which formula could be used to determine the number of trees the nursery will plant next year, NEXT, if the number of trees planted this year, NOW, is known?

(A) NEXT = 4 · NOW

B NEXT = $\frac{1}{4}$ NOW

C NEXT = 2 · NOW + 4

D NEXT = NOW + 6

3. There were originally 4 trees in an orchard. Each year the owner planted the same number of trees. In the 29th year, there were 178 trees in the orchard. Which function, $t(n)$, can be used to determine the number of trees in the orchard in any year, n?

n = 29
n(t) = 178

A $t(n) = \frac{178}{29}n + 4$

B $t(n) = \frac{178}{29}n - 4$

(C) $t(n) = 6n + 4$

D $t(n) = 29n - 4$

a) $\frac{178}{29}(29) + 4 = 182$

b) $\frac{178}{29}(29) - 4 = 174$

c) $6(29) + 4 = 178$

d) $29(29) - 4 = 837$

4. The sequence below shows the total number of days Francisco had used his gym membership at the end of weeks 1, 2, 3, and 4.

$$4, 9, 14, 19, ...$$

Assuming the pattern continued, which function could be used to find the total number of days Francisco had used his gym membership at the end of week n?

A $f(n) = n + 5$

B $f(n) = 5n - 1$

C $f(n) = 5n + 4$

D $f(n) = n^2$

# of weeks	Total Days
1	4
2	9
3	14
4	19

$y = 5x - 1$

5. A sequence is shown below.

$$10, 12, 14, 16, ...$$

Which function can be used to determine the nth number in the sequence?

A $F(n) = n + 2$

B $F(n) = 2n + 8$

C $F(n) = 2n + 10$

$n = $ term number

n (term)	number
1	10
2	12
3	14
4	16

a) $f(n) = 1 + 2 = 3$ Not 10

b) $f(n) = 2(1) + 8 = 10$ ✓

c) $f(n) = 2(1) + 10 = 12$ Not 10